

Coming Soon to Computers Everywhere, a World's Fair

By JOHN MARKOFF

It's hard to say no to Carl Malamud.

The 36-year-old Washington-based economist has successfully pushed, prodded, wheedled and occasionally even begged powerful corporate executives, Clinton Administration officials and foreign leaders to support his crusade to transform the Internet computer network into a combination of a global Main Street and digital Library of Alexandria.

Earlier this year Mr. Malamud's nonprofit research group, Internet Multicasting, pushed the Securities and Exchange Commission and the Patent and Trademark Office — both kicking and screaming, initially — into establishing public records distribution sites on the Internet.

Now that both sites are considered strong successes — the S.E.C. system distributed more than two million documents in its first month of operation — Mr. Malamud has set out on a much more ambitious effort to extend a high-speed, multimedia version of the Internet into more than 100 countries. The first step is to begin on New Year's Day, when he will open the first Internet world's fair, to be followed in February by the start of what he is calling the Internet railroad. (A preview of the fair can be seen at the World Wide Web site <http://park.org/fair>.)

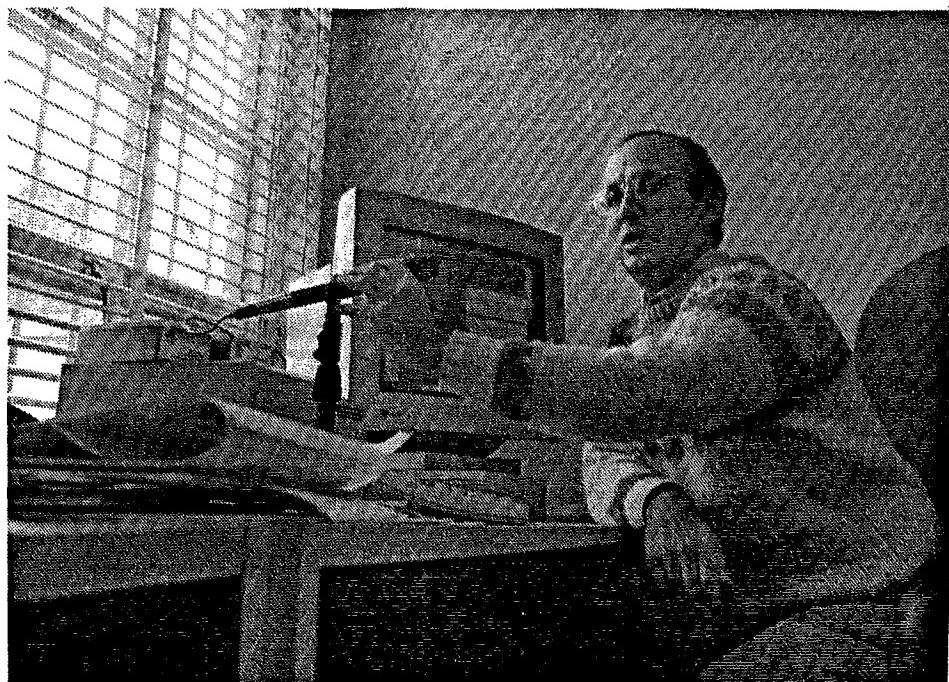
The fair itself will be a digital exhibition set up on a vast global "farm" of computer disks located primarily in Tokyo, San Francisco, Washington and Amsterdam, and created by people in more than 80 countries during the next year. Besides offerings like an interactive history of wind energy at the Netherlands' national site, and other downloadable multimedia material specially designed for the fair, there will be recorded and live events like an interview with the Dalai Lama in early January and video coverage of the 25th anniversary of the Kennedy Center in April.

"The impact of the fair is huge in Japan," said Joichi Ito, a Japanese business executive who is helping organize the fair there. "We have everyone focusing on it."

The railroad is actually an ambitious effort to create a globe-girdling digital pipe to carry the digital world's fair, fast enough to transport multimedia information — sound, full-motion video and computer data. While the fair is scheduled to last only through the end of 1996, Mr. Malamud hopes the railroad will become a transport medium that endures into the future.

In the last year Mr. Malamud has circled the globe seven times himself, logging 250,000 air miles, meeting with government agencies, telephone company and computer executives and raising \$100 million in contributions of technology and service to start the fair.

In Japan, for example, industry and government have contributed two high-speed digital backbone networks, two terabytes of computer disk space and an I.B.M. supercomputer to help turn the Tokyo neighborhood of Harajuku into a digital city, where people on the scene can tap into the Internet from cyber-



Mary Katz for The New York Times

Carl Malamud is a man on a mission: preparing for the Internet 1996 World Exposition.

cafes while people around the world can log in for interactive events.

Mr. Malamud has seized on the idea for the first Internet world's fair and the global railroad as an information-age analogy to the way world fairs in the earlier, industrial era helped to usher new technologies into widespread use.

The traditional world fairs "taught people about the world around them, but they also challenged engineers," Mr. Malamud said. "Most importantly, the world fairs, because of their scale and scope, proved to business and home consumers that the technology had a place in their lives."

As he prepares to put the fair — the Internet 1996 World Exposition — on line, he has assembled a dedicated chain of high-speed fiber-optic links capable of sending data at speeds as high as 155 million bits a second in an arc stretching from Taiwan, Korea and Japan in Asia to Finland, Sweden and Russia in Europe.

By the end of 1996 Mr. Malamud hopes to stretch the Internet railroad fiber around the entire world. Along the way he has assembled endorsements from presidents including Bill Clinton and Boris N. Yeltsin and has occasionally left some of those who have suffered his prodding a little exasperated.

"I've ended up doing more lobbying for Carl Malamud than I have for some heads of state," said a Federal official who has been called on repeatedly to help gain commitments for the project.

In an era when the Internet has become synonymous with commercialism and instant fortunes, Mr. Malamud's commitment to public service has set him apart.

"This is an individual moving companies and countries by the strength of his will and the obvious

goodness of his ideas," said Larry Landweber, a computer scientist who is president of the Internet Society, an international organization that oversees the Internet's standards. "He's an evangelist."

For Mr. Malamud it is all part of the work that has been his passion since the early 1980's when he was first introduced to computer networking while studying economics as an undergraduate at Indiana University, where he subsequently got an M.B.A. A decade later he became an early volunteer helping to create the Interop conference, a computer-networking industry trade show that was one of the first venues to demonstrate the potential of the Internet.

With the financial help of Dan Lynch, an Interop founder, Mr. Malamud was talking with Vinton Cerf, a designer of the original technical protocols — communications software standards — for the Internet. Inspired by the idea, he immediately hopped on a plane to persuade two Internet experts, Jan Muriel of Japan and Rob Blokzijl of the Netherlands, whom he had met on his original global tour, to sign on to the idea.

Today Mr. Malamud maintains that there are still two ways to build the Internet. One is the high-stakes, high-visibility route of initial public offerings in the stock market, the money-raising approach being pursued by people like Netscape Communication's founders, Jim Clark and Mark Andreessen. The other route, Mr. Malamud maintains, is by soliciting funds and building viable public works projects that benefit the common good.

Mr. Malamud takes pains to point out that he hasn't organized the fair by himself. There are now hundreds of people working on the project around the world, including some of the Internet's best technical experts.

Chris Swanson, a technical advisor from SSDS, a network consulting firm in Englewood, Colo., is global project manager on a piece of the project known as the World's Central Park. Marten Tepstra, a special-projects engineer from Bay Networks Inc., is global project manager on the Internet railroad, responsible for installing and maintaining the router computers that will keep the global traffic flowing over the railroad.

The effort, Mr. Malamud said, did not compete with the current rush to commercialize the Internet. "People don't move to towns without parks and roads and schools," he said. "It's a viable part of the global business."

All aboard! The Internet railroad is about to get on track.

amud set out in 1991 as a self-described "Official Internet Explorer," physically traveling around the world three times in his quest to visit as many nodes on the Internet as possible and meet as many of the people who were building the network infrastructure as he could.

That project led to his 1992 book "Exploring the Internet: A Technical Travelogue," a chatty account of the then-little known elite that built the Internet, before it became a household word.

The idea of a cyberspace world's fair was hatched in late 1994 when

On-Line Internet Expo Will Promote Cyberspace to the Whole Wired World

By JARED SANDBERG

Staff Reporter of THE WALL STREET JOURNAL

NEW YORK — A consortium of corporate sponsors and high-tech hotshots plans to stage a 1996 world's fair in cyberspace.

The Internet 1996 World Exposition will be a global initiative to introduce the Internet to those who don't already know about it, just as prior world's fairs flaunted railroads, electrical power and the Ferris wheel.

But this world's fair will be entirely virtual, played out in cyberspace on host computers and accessible only by desktop computers linked to the Internet, the global web of computer networks.

This global gathering will start on computer systems in the U.S., Japan, England, the Netherlands and Thailand. The exposition, which will be announced on March 29th, will run throughout 1996. "It's the first world's fair that's located in the world, not in one city," said Carl Malamud, one of the exhibition's organizers and president of the Internet Multicasting Service, a Washington, D.C. non-profit firm that specializes in putting the Internet to unconventional uses. "We're building a public park for the global village," he said.

For those who aren't wired, computer links to the exposition will be available at selected public libraries and museums, the organizers said.

Backed by corporate sponsors that include MCI Communications Corp., Sun Microsystems Inc., and Quantum Corp., the fair will feature a number of virtual "pavilions." A "Reinventing Government Pavilion" will include a database of all U.S. patents, trademarks and Securities and Exchange Commission filings. The "Global Schoolhouse Pavilion" will feature live video broadcasts from Washington's Kennedy Center and cameos of swimming fish at the Tokyo Aquarium.

Other electronic displays will address small-business use of the Internet and a "Town Hall" feature that will broadcast monthly video sessions from the National Press Club in Washington. Another pavilion, ToasterNet, will broadcast the winners of technology-invention contests at trade shows sponsored by Japan's Softbank Corp.

The various data will amount to more than a "terabyte" of storage space, the

equivalent of one million floppy disks, according to a spokeswoman for Quantum, which is donating the computer storage. Those computers will be connected by high-speed fiber-optic connections—dubbed the "Internet railroad"—that can send 30 floppy disks of data per second from country to country.

The effort is the brainchild of Internet architect Vinton Cerf and Mr. Malamud, who has been pioneering the use of the Internet for radio shows and video broadcasts for roughly two years. His radio show, called "Geek of the Week," features recorded interviews that Internet users can download to their computers.

Design the 'global village' at World Net expo

Bob Johnstone, Tokyo

IN the 19th century, world fairs like the Great Exhibition at the Crystal Palace in London's Hyde Park introduced millions of people to the latest marvels of science and technology such as electric lighting and power. In Las Vegas at the end of this month, a group of computer network pioneers will announce their version of a world fair—the Internet 1996 World Exposition. The challenge for exhibitors at this fair will be to create cyberspace attractions that show visitors what the Internet can do for them.

A major difference between this and previous events is that the Internet expo will not be located at a single site, but in several cities around the world. Visitors to the fair, which will run throughout 1996, will have access to powerful computers, connected to the other key sites by high-speed lines that can carry huge amounts of multimedia data. In addition to the people physically visiting the exhibition, any of the Internet's 30 million users in 150 countries will be able to tap into the event as "virtual visitors".

Core sites have already been confirmed in several cities, including Washington (at the National Press Club and the Kennedy Center), Tokyo (Keio University) and Amsterdam (the Dutch institute for high-energy physics).

As at previous world fairs, the Internet expo will feature "pavilions" containing exhibits on particular themes. The difference is that the Internet expo pavilions will be accessible from all over the world. For example, the Global Schoolhouse Pavilion will enable schoolchildren to access multimedia data, such as online programs on the performing arts from the Kennedy Center, or digitised videos of fish from the Tokyo Aquarium.

The Reinventing Government Pavilion will house huge US government databases of patent, trademark and financial information, which will be available online to any visitor. Other expo attractions will include the Future of Media Pavilion, which will demonstrate the potential of the Internet as an alternative to conventional broadcasting

media, and the Small Business Pavilion, at which smaller firms will demonstrate their cyberwares.

The pavilions will make extensive use of existing Internet resources, explains one of the fair's principal organisers, Carl Malamud of Internet Multicasting Service, a non-profit making organisation based in Washington. "We're not starting from scratch," he says. Other members of the organising committee include Vinton Cerf, president of the Internet Society, Eric Schmidt, chief technical officer of Sun

of volunteers, Malamud expects that the cost of putting on the expo will be surprisingly small: "In the millions, rather than the tens of millions of dollars," he says.

The proposal has already attracted considerable support in several countries, notably the US, where the idea for the expo originated. Vice-President Al Gore has described the expo as "an innovative, grassroots approach to demonstrating the power and potential of the emerging global information infrastructure.

"The [Clinton] administration is committed to working with companies, institutions, and community leaders from around the world to make this initiative a success," he said.

Several American high-technology firms have already pledged cash, equipment and resources such as programmers' time. They include disc drive maker Quantum, which is donating a terabyte of storage space—equivalent to a million floppy discs. Computer manufacturer Sun Microsystems is also offering equipment, and long-distance telecommunications carrier MCI will provide the high-speed "T3" dedicated lines. These will be needed to shunt massive amounts of data between core expo sites in the US, Asia and Europe at 45 megabits per second.

In Japan, corporate sponsors include Sony, NTT and NiftyServe, Japan's largest online service provider. Each will contribute at least \$100 000 or the equivalent in equipment or working hours. Organisations in three other countries—the Netherlands, Thailand and Britain—are already planning to participate.

The world fairs of the last century all left memorable legacies. These included Crystal Palace (London, 1851) and the Eiffel Tower (Paris, 1889). The legacy of the 1996 expo, according to Malamud, will be an Internet that is impossible to ignore. The plan is to accumulate enough publicly accessible data on the Internet in the form of online amenities like museums and libraries to ensure that other networks run by private companies will have to connect to it. "It's an opportunity to design the global village," says Malamud. □



Far pavilions: the Crystal Palace fair brought scientific marvels to millions

Bridgeman Art Library

Microsystems, and Marshall Rose, principal scientist at First Virtual, an Internet bank.

The idea for the expo, Malamud says, sprang from the realisation that in trying to promote the development of computer networking, engineers, corporations and governments were pulling in different directions. "We figured that if we could harness all three together," he says, "then we would be able to get some synergy." Thanks largely to donations and the efforts

In 1996, a World's Fair to Be Held in Cyberspace

By PETER H. LEWIS

An ambitious plan for creating a world's fair in cyberspace to demonstrate the capabilities of global information networks has been endorsed by the Clinton Administration and a number of companies and private organizations.

The Internet 1996 World Exposition, organized by the Internet Multicasting Service of Washington, is to

be announced later this month. Current plans include the distribution of government, cultural, educational, entertainment and technological information over the Internet, a computer network that connects tens of millions of users in more than 100 countries.

The World Exposition is expected to be accessible from personal computers linked to the Internet, and also from a proposed network of

public "Internet planetariums" in cities in different countries.

Because of the nature of the Internet, which has no central organizing body, anyone with the necessary computer skills and network access can erect personal "pavilions" linked to the effort. For example, Ung Ang Talay, restaurant critic of The Bangkok Post, has agreed to create a pavilion on Thai food, linked to Bangkok's largest outdoor food market, said Carl Malamud, president of the not-for-profit Internet Multicasting Service.

In announcing the White House endorsement, Vice President Al Gore said in a statement: "Previous world's fairs have been very effective at exposing millions of people to new technologies. A World's Fair for the Information Age will give people a look at the not-too-distant future — a future in which all of us will be connected by a global network of networks."

World expositions, beginning in the 19th century, popularized innovations like the electric light, the railroad, the telephone and television. They also spurred the development of new technologies and left monuments, including the Eiffel Tower.

"Our Eiffel Tower is 1.2 terabytes of disk space," Mr. Malamud said. The vast data base will serve as a kind of public park in cyberspace, he added.

Within the park, he said, will be an array of text, sound, graphic and video information services, including a Global Schoolhouse for linking students and educators internationally, regular multimedia broadcasts for children from the Kennedy Center for the Performing Arts, displays of environmental technologies, a

"future of media" pavilion, and information centers sponsored by museums and individuals.

As part of the effort, several businesses have informally agreed to contribute to the construction of high-capacity data "railroads," known technically as T-3 phone lines, to carry information across the oceans, Mr. Malamud said. The lines needed to create the exposition will remain in place after the event concludes, as a public resource, he said.

Contributors to the effort to date range from SSDS Consulting of Englewood, Colo., which is donating a technical engineer to work full time on the project for a year, to the Quantum Corporation of Milpitas, Calif., which is donating 250 hard disk drives, each capable of storing 4 gigabytes of information.

The drives will be distributed among computers in Washington, Boston, the Netherlands, Japan, Britain, Thailand and other sites that have agreed to take part.

American companies that have endorsed the plan include Cisco Systems Inc., the dominant maker of Internet hub computers, Sun Microsystems Inc., and Silicon Graphics International. The Interop trade shows, which attract tens of thousands of Internet developers and users each year, will make the World Exposition the key theme for the next year.

"A lot of really interesting ideas are certain to bubble up from the grass-roots effort," said Thomas A. Kalil, a director at the National Economics Council at the White House. "If you have something that has participation by lots of different people, you're going to come up with a lot of interesting ideas that none of us have thought of yet."

Internet Expo provides boost to Asia's computer networks

Tokyo. Asian governments are leaping eagerly at the chance to participate in next year's Internet World Exposition in Seoul, the capital of South Korea. Many see the exposition as a golden opportunity to persuade their citizens of the importance of computer-based communication.

Last week South Korea's Minister for Information and Communications, Kyong Sang-Hyon, announced his country's official support for the fair. Japan's preparations are already well advanced, China, Singapore and Thailand have recently announced they plan to participate, and other countries in the region, including Malaysia, are expected to follow suit.

The exposition, the brainchild of cyberspace pioneers such as Vinton Cerf, will run from January to December 1996, and is an attempt to emulate past world fairs, which many see as starting with the 1851 Great Exhibition at the Crystal Palace in London.

One of the achievements of such fairs has been to introduce millions of people to the latest marvels of science and technology, such as electric light and power. The Internet Expo is similarly intended to demonstrate the enormous benefits of computer connectivity, and has already won the support of the Clinton administration.

Asia currently lags far behind the United States and Europe in terms of network infrastructure and number of on-line subscribers. "Just for Japan, the expo will increase connectivity by ten times," predicts Carl Malamud, one of the fair's principal organizers, who has been travelling around Asia, signing up participants.

South Korea has designated its National Computerization Agency as the secretariat for the expo. Japan has yet to issue a formal statement of support. But in terms of fund-raising and corporate backing, Japanese efforts are currently the most enthusiastic.

International telecommunications carrier KDD, for example, has agreed to donate a high-speed T3 optical fibre link, capable of transmitting 45 megabits a second, for trans-Pacific connection to the United States, for

the duration of the expo. At the same time NTT, Japan's largest domestic carrier, will provide similar connections to 15 sites — 10 cities and 5 universities — in Japan.

To encourage the participation of individual users, NTT will also set up free digital links to 300 Japanese homes. These will run at 128 kilobits per second, the fastest speed that conventional copper cables can handle.

Manufacturing companies such as Sony, as well as leading Japanese software houses like ASCII and Softbank, have pledged cash, equipment and manpower worth US\$10 million. A meeting of the Japanese expo working committee last week in Tokyo attracted almost 100 participants. The committee is chaired by Jun Murai, an associate professor at Keio University and the *de facto* leader of the Internet community in Japan.

Last month, Murai went to China to stimulate support for the fair. "Chinese universities are very interested in working with us," he says. Murai returned from Beijing with a memorandum of understanding signed by the vice president of the Chinese Academy of Sciences, Lu Xiankui, stating that China will participate.

As China lacks high-speed optical fibre links, Murai has arranged to borrow a transponder on JCSAT-II, a new satellite launched by Japan on 29 August. The transponder's 18 circuits, each operating at a speed of 2 megabits per second, will also provide connections with India and other parts of Asia.

A high-speed link connecting Japan and South Korea is also under discussion. All these connections could well constitute what Asia has lacked so far, namely a transcontinental Internet 'backbone'. Asian countries currently hook up to the Internet via separate links to the United States.

The expo will last for just a year. But it is likely to be of lasting significance for Asia. Malamud points out that the high-speed backbone network set up by the National Science Foundation was only temporary, but the commercial Internet developed out of it.

Bob Johnstone

FOCUS ON TECHNOLOGY

The Man With Ideas

Internet: The Robert Moses of cyberspace plans a 1996 world's fair

BY KATIE HAFNER

THREE YEARS AGO, CARL MALAMUD, an economist, writer and computer consultant, traveled around the world three times. In six months, he went to 56 cities and visited resident techies in each. Malamud saw that pieces of Marshall McLuhan's vision of a global village were actually falling into place. When he returned, he resolved to help make the circle complete.

A conspicuous, unstoppable force in the Internet community, Malamud is organizing perhaps the most ambitious undertaking on the Internet to date: a 1996 world exposition modeled on world's fairs of the past, with 100 participating countries. Funded by corporate sponsors and expected to cost about \$10 million to set up, with another \$10 million in donations of equipment, the fair will blend the physical and virtual worlds. The main entrance to the fair will be called Central Park—a huge World Wide Web site residing on eight computers spread around the world. The Central Park computers will be linked by a global, ultrahigh-speed electronic railroad. In addition, each participating country will have its own electronic theme pavilion. Throughout the year actual events, such as Peter Gabriel's World of Music, Arts and Dance concert tour next summer, will be broadcast over the Internet as part of the fair.

If anyone can pull this off, it's Malamud. At 36, he is the idea man of cyberspace. Malamud is perhaps best known among Internet cognoscenti for popularizing audio on the Net. In 1993 he ran up \$40,000 in debt on his credit cards to buy sound equipment and began producing weekly interviews with computer experts. He called the program "Geek of the Week." People could download interviews from the Internet, store them on their computers and listen to them later.

Malamud's broadcasts were a hit, with more than 100,000 listeners the first year. But they were data-intensive, which



On the soundboard:
Malamud with mike

JOHN FICARA - NEWSWEEK

made them easily accessible only to people with very high-speed connections to the Net. Even using a relatively fast modem, it could take two hours to download a half-hour interview. Now, with applications such as RealAudio, a new audio format that makes listening to audio on the Internet nearly instantaneous, audio on the Net is finally reaching the masses.

"Geek of the Week" grew into Internet Multicasting Service, a not-for-profit "cyberstation." Malamud oversees a staff of six from an office above a Chinese restaurant on Capitol Hill in Washington, D.C. He gets his funding and donations of equipment from corporations such as Sun, MCI Communications and disc manufacturer Quantum Corp. His annual budget is about \$1 million, and he estimates that there are about about 250,000 regular listeners.

An intense workaholic, he is driven by a desire to create public spaces on the Internet as it grows increasingly commercial. He could just as easily start a commercial venture, but the prospect doesn't particularly interest him. "I couldn't do what I'm doing in a commercial company," Malamud insists. "I'm not beholden to investors or venture capitalists and I don't have to make a profit, which means I can do new things."

Malamud's peers in the computer industry generally speak glowingly of him. Some are puzzled by his lack of interest in making money. But everyone seems to be in awe of his creativity. "You never know what he's going to think of next," says Stephen Wolff, an engineer at Cisco Systems, Inc. "And like a lot of people who have terrific, huge-scale ideas, Carl's not always the easiest person to deal with."

Malamud inherited his technical bent from his parents — his father is a high-energy physicist, his mother a physiologist. He got his start in computers when, as a doctoral candidate in economics at Indiana Universi-

ty in 1982, he complained constantly to university officials about the computers. "Finally they said, 'If you're so damn smart why don't you come work here?'" he recalls. So he dropped out of the program and helped design the university's computer network. Malamud's site on the World Wide Web (<http://town.hall.org>) contains more than 300 hours of audio. Visitors can listen to Robert Frost reading from his poetry, check in on a National Press Club luncheon or hear a recording of the recent United Nations 50th-anniversary celebration.

On top of the intensive planning for the world expo, Malamud has been engaged in a wrangle with the Securities and Exchange Commission over the SEC's federally mandated Electronic Data Gathering, Analysis and Retrieval system, or EDGAR. The database contains financial information on publicly traded companies. With a grant from the National Science Foundation, last year Malamud put the database on the Net, making it accessible free of charge to anyone with a computer and modem. He's going to drop the project in October but hopes the SEC will keep the data in the public domain.

The world's fair will be Malamud's most daring project. Once it's over, he plans to dissolve Internet Multicasting Service, taking the assets and distributing them to different organizations on the Internet. With that, he hopes to create cyberstations similar to his, scattered around the world. Once Internet Multicasting has disappeared, Malamud says, he plans to return to writing books and consulting. But those who know Malamud aren't inclined to believe him. "That might last about three months," says one friend. Then he'll have another idea.

With TORIANO BOYNTON

'96 expo to show off Internet

Fair's legacy could be parks in cyberspace

BY DAVID BANK
Mercury News Staff Writer

The Eiffel Tower was built for the 1889 world's fair in Paris. Chicago's Columbian Exposition in 1893 introduced George Ferris' amusement park wheel. And San Francisco's majestic Palace of Fine Arts dates to the Panama-Pacific International Exposition of 1915.

The legacy of the Internet 1996 World Exposition could be enduring, spacious and well-designed public parks at the center of cyberspace.

Organizers of the ambitious project, which will be formally launched at the end of this month, are planning a yearlong extravaganza of cultural, educational and gee-whiz multimedia attractions from around the world that they hope will draw millions of new visitors to the Internet.

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'96 expo to show off Net from culture to education

■ WORLD'S FAIR

from Page 1A

To accommodate the expected crowds and minimize delays, they're engineering a huge increase in the Internet's global capacity — creating something that will live on long after the year-long fair is over. They plan to house interactive exhibits on huge data storehouses linked by a new high-speed "Internet Railroad" that can haul the data around the world at record speeds.

"We're going to try to create the global village for a year," said Carl Malamud, the peripatetic non-profit entrepreneur who came up with the idea for the world's fair and is now on a round-the-world tour to line up support.

As founder of the Internet Multicasting Society in Washington, Malamud has made a specialty of "liberating" government databases to provide the public with what he calls the fuel of the information economy. By the time of the fair's ribbon-cutting next January, he plans to expand the offerings to include the government's complete patent and trademark records, as well as corporate financial reports filed with the Securities and Exchange Commission.

Now, Malamud's role is to convince profit-conscious corporations that the provision of public facilities is essential to the economic health of any community, even a virtual one. There is no charge to exhibitors, but sponsors and organizers are paying up to \$100,000 in cash or in-kind equipment donations, with the proceeds being used to cover expenses or help create the infrastructure to make the fair possible.

"We think the global village should have parks," Malamud said during a recent stop in San Jose before he flew off to Tokyo, Bangkok, London and Amsterdam.

Gore's support

In the United States, Malamud has secured the support of Vice President Al Gore, who praised the fair as an "innovative, grass-roots approach to demonstrating the power of the emerging global information infrastructure."

In Dallas, the Infomart is creating a "cyberspace planetarium" — a room full of public access terminals for visiting the fair. The Kennedy Center for the Performing Arts will put performances — from Handel's Messiah to Billy Taylor's jazz — on the Internet. Former Sen. Gaylord Nelson will lead "town hall" meetings on environmental issues. Rep. Ed Markey is organizing exhibitors in the Boston area.

"We're going to set up this showcase, and it's going to be this really neat place for these applications," said Eric Schmidt, chief technology officer at Sun Microsystems Inc. "The thing the Net can do, which you just can't do with broadcast technology, is interactivity."

In the Bay Area, former newspaper publisher Will Hearst is soliciting ideas for using the 100 gigabytes of disk storage space set aside for regional projects.

"I remember going to the World's Fair in New York and visiting pavilions of countries I had never heard of," said Hearst, now a partner in the Menlo Park venture capital firm of Kleiner Perkins Caufield & Byers. "In this one, people in the Bay Area will look and see what people are putting on the Net in Nigeria and people in Oman will see what's happening in Sunnyvale."

Heading the Japanese effort is Jun Murai, a professor at Keio University, who effectively runs the Japanese Internet through the WIDE project, a coalition of 70 major corporations. Among the exhibitors will be the environmentally conscious model city of Huis Ten Bosch near Nagasaki.

From Thailand, Aw Taw Kah, the huge outdoor food market, will be on-line with exhibits of Thai cuisine hosted by Ung Ang Talay, restaurant critic of The Bangkok Post.

To house the exhibits, Malamud has secured a terrabyte of computer disk storage space. Now he's working on the plan to circle the globe with high-speed T-3 telecommunication links to enable international communication to move as fast as domestic traffic.

Terms such as "terrabyte" and "T-3" are still unfamiliar to many, but so was the telephone

when Alexander Graham Bell displayed it in 1876 at Philadelphia's Centennial Exposition.

A century from now, it is likely to be common knowledge that a terrabyte of data storage represents roughly the equivalent of a million computer floppy disks. That's a lot of disk space.

"This will be one of the largest collections of hard disk drives in the world," said Barbara Fagan-Smith of Quantum Corp. in Milpitas, which donated the drives valued at \$500,000. "This is saying, 'Cyberspace is real now. It's not just a cliche. It exists.' "

T-3 may be slow in future

And in time, a global T-3 line, which can move data at 45 million bits per second and make possible interactive voice and video, may be considered slow. Right now, many countries are linked to the Internet at a fraction of that speed.

Vinton Cerf, a fair organizer who wears two hats as president of the Internet Society and a senior vice president at MCI, said he is trying to persuade global telecommunications carriers to dedicate more capacity to the Internet.

"It's essential if we're going to have the global business network we talk about," he said.

Cerf said the resources being gathered for the fair would help complete the Internet's transformation from a storehouse for information into a truly interactive medium.

"I want to go from browsing to directly interacting with people," Cerf said. "We know we can do that."

IF YOU'RE INTERESTED

For more information about the Internet 1996 World Exposition, send e-mail to fairmaster@radio.com. The Internet Multicasting Service can be found on the World Wide Web at <http://town.hall.org>.

 **Mercury Center**
INSTRUCTIONS ON PAGE 2A

■ What do you think this venture will mean for the future of the Net? Voice your opinion. Use keyword: MC Talk, select Browse Boards, then Tech Talk, then Internet / Online Services folder. Or, choose Letters for Publication in the scrolling window. □

Newsweek

Affirmative Action
Playing the Gender Card

ONLINE

A Global Village Expo

IN MANY WAYS THE 20TH century traces its vision of the future to the 1939 World's Fair in New York; now a few visionaries want to do the same thing on the Internet. For all of 1996, hope organizers at the Internet Multicasting Service, the Net will bring visitors to a Global Schoolhouse, a Small Business Pavilion and pavilions sponsored by nations such as Thailand and Britain. Organizers want "cyberspace planetariums" around the country where people can hook into the Internet and check out the festivities for free. The virtual pavilions will remain in place after the fair's end, just like artifacts of real-world expos.

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Thailand goes to the fair



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THE BANGKOK POST'S WEEKLY INFORMATION TECHNOLOGY SECTION

WEDNESDAY MARCH 15, 1995

First Internet exposition to be unveiled on March 29

A GROUP of pioneering researchers who have been involved in shaping the Internet since its inception are preparing a world's fair to bring this technology into the lives of millions of people in over a hundred countries.

The world's fair for the Information Age will be formally unveiled on March 29 in Las Vegas at Network+Interop, one of the industry's most comprehensive trade expositions.

Unlike previous world's fairs, however, the Internet 1996 World Exposition will not be located in a specific city or country; it will be a truly global event.

On the scheduled date, a large number of corporate executives, researchers, and public officials will explain their contributions to this project.

The Internet 1996 World Exposition is organised around an array of pavilions.

The Global Schoolhouse Pavilion, for example, will put locations like the Tokyo Aquarium right on-line, allow-

ing children all over the world to watch fish swim on their computer monitors, and at the same time learn about aquatic life.

The Kennedy Center for the Performing Arts in Washington, D.C. will feature weekly musical and dramatic performances for young people.

A Future of Media Pavilion will explore how the potential of this new and instantaneous method of global communication can be used by news and entertainment organisations.

The Fujisawa Campus of Keio University in Japan, for example, will adapt their campus radio station to broadcast over the campus computer network instead of over the airwaves.

In London, World Radio

Network will feature round-the-clock news and information over the Internet.

The initial five countries that will be featured at the Las Vegas unveiling include the USA, Japan, England, the Netherlands — and Thailand! A series of organising committees have been formed in each of those countries, with prominent public officials and senior corporate executives.

PARTICIPANTS

In Japan corporate participants include representatives from Sony, Softbank, ASCII Corp, NTT, and Nifty Corporation, the largest on-line service provider in the country. During the remainder of this year, scores of other countries will announce their organising committees. On January 1, 1996 the Exposition will open,

and will last throughout the year.

A wide variety of core pavilions are currently being organised, such as a Small Business Pavilion, Environmental Pavilion, and a Toasternet Pavilion, which will challenge engineers to put new and interesting devices onto the net. Anyone, however, can open a pavilion, and individuals, corporations, and countries are all being encouraged to participate.

Corporate contributions have been flowing in the initial five countries.

In the USA, disk drive manufacturer Quantum is contributing one terabyte (one trillion bytes, equivalent to approximately one million floppy disks).

Sun Microsystems is donat-

ing massive server computers. Dr Eric Schmidt, chief technology officer of Sun Microsystems, explained, "Our contribution recognises that members of the industry are also part of a community, and we are pleased that we are able to build this public park for the global village."

One of the most challenging aspects of the Exposition is being dubbed the "Internet Railroad".

Spearheaded by Dr Vinton Cerf, the "Father of the Internet" and president of the Internet Society, the Railroad is an attempt to dramatically increase the telecommunications infrastructure available for moving public data.

The goal of this coalition of

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Internet exposition

telecommunications companies is to build a railroad operating at a speed of 45 million bits per second circling the globe. An ordinary modem, by contrast, operates at only 10,000 bits per second.

The Exposition is garnering the support of leaders around the world. In the United States, Vice President Al Gore recently commented, "The Internet 1996 World Exposition is an innovative, grassroots approach to demonstrating the power and potential of the emerging global information infrastructure.

The US administration is committed to working with companies, institutions, and community leaders from around the world to make this initiative a success."

Senior White House officials told the *Bangkok Post* that the US government is considering a number of options to support the Exposition, including a pavilion of government databases and identifying museums or other public places that could be used as a "cyberspace planetarium".

A cyberspace planetarium is a place where people without Internet accounts can go and get a guided tour of the Internet.

The first cyberspace planetarium is already being constructed at the Infomart, a large exhibition centre in Dallas, Texas.

Exhibitors in the Infomart are volunteering their time to

staff the facility and are inviting the mayor of Dallas to bring in schoolchildren, government officials, and other members of the community to learn about the technology that is reshaping the world around them.

In addition to Japan and the USA, the project is attracting strong support in Europe. In Amsterdam, the organising committee is being led by Rob Blokzijl, chairman of Ripe, the pan-European Internet engineering group.

Organising committees in Eastern Europe, India, Africa, and other regions of the world are being actively supported.

Carl Malamud, one of the principal organisers of the Exposition (and at one time a columnist for *Post Database*), was in Bangkok on Monday to help discuss preparations for Thai participation in the project and in the unveiling later this month.

"This Exposition," according to Malamud, "is an important step in introducing the technology we have been developing to corporate and home users.

"We are asking people to move to the Global Village, and people do not move to communities without parks, schools, and other public facilities. The Exposition, by building a public park for the Global Village, is attempting to pave the way for a thriving and prosperous information economy."

Thai art of cooking to be available on Internet soon

COOKING, arguably, is our greatest national art. Over the past couple of decades, Thai food has conquered the culinary world. What better centerpiece for the Thai Pavilion at the Internet 1996 World Ex-

position then, than an on-line version of the *Aw. Taw. Kaw* Market?

There is probably no place in the entire country where Thailand's bounty is more impressively displayed than at this market, which astonishes hoards of tourists and Thais alike with its displays of the finest food products that we have to offer.

Those who visit the *Aw. Taw. Kaw* Market via the Internet will see virtually all of it, from pictures of prize durians heaped into spiky pyramids to brimming pots full of such regional specialties as northern-style *plaap raa song khrueng* or *gaeng tai plaap* as made in the far South.

Computer users will be able to download colour pictures of food, audio files containing interviews in Thai or English, and text files with recipes, an-

ecdotes, and historical data about Thailand's cuisine.

Food is a window to many aspects of Thai society. While downloading a picture of tiger prawns, for example, the computer user will be able to examine an essay describing the pioneering techniques used by farms in the south. While examining a recipe for dried strawberries, people can learn about the Royal Projects and how they have brought a new diversity to the agriculture of the North.

Aw. Taw. Kaw on-line will try to reach all segments of the global Internet. Those with high-end multimedia equipment will be able to experience the sounds and sights of the market, but even those with only e-mail accounts will be able to participate.

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Countdown to
IT Week '95
18
weeks to go

By sending a message to an "e-mail answerbot", users will be able to submit requests to a powerful search engine, and then instruct it to send resulting "hits" back to them. For example, a search on the words "plaap raa" might bring back recipes for "nam phrik num", as well as detailed instructions on how to make and store fermented fish so that they can prepare the dish at home.

The market is only the start-

ing point. Interviews with

Thai cooks, data on representative

Thai restaurants, and heir-

loom recipes from accom-

plished Thai cooks will all be

featured. Participation by

food-lovers from all regions of

the country will be invited.

A Thai pavilion will be a

boon for attracting tourism

and a way to highlight the ac-

complishments of Thai indus-

try and agriculture, but it will

also be a valuable tool for training a new generation of Thai students in how to provide on-line services. Visiting scientists and local researchers will work with universities to make *Aw. Taw. Kaw* on-line a teaching tool for students in a variety of disciplines.

Work on the *Aw. Taw. Kaw* on-line pavilion has already begun, but the focus of activity will be in November and December of 1995, with continued efforts throughout 1996.

At the end of 1996, when the Exposition ends, the *Aw. Taw. Kaw* on-line pavilion will stay around, providing a continuing symbol in cyberspace of Thailand's culinary heritage.

Anyone interested in assisting with this project should write to Ung-aang Talay at the *Bangkok Post*, or at ung-aang@talay.org on the Internet.

Thai cooking

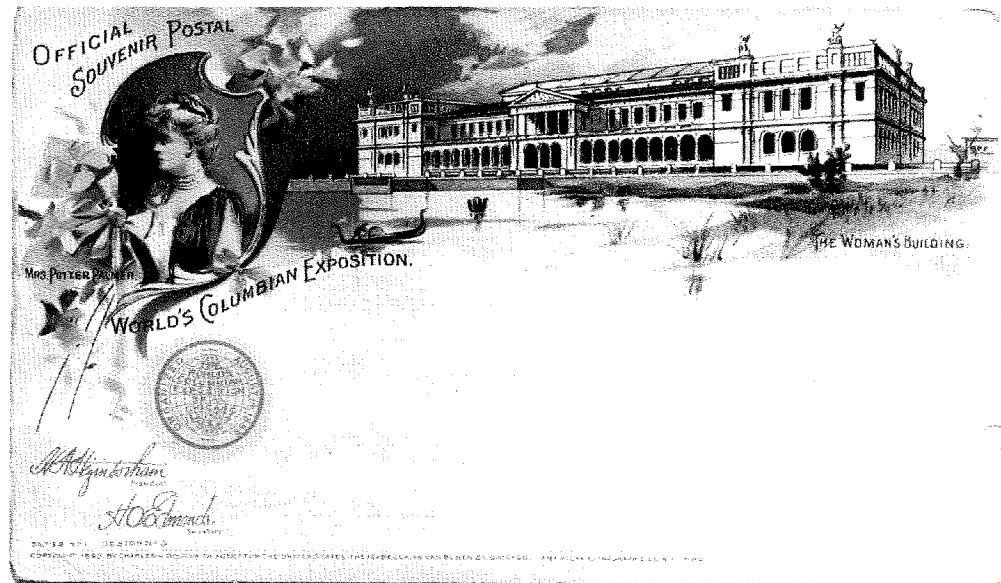
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INTERNET
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[This card is a replica of the original postcard, invented for the 1893 Chicago Columbian Exposition]

THE INTERNET 1996 WORLD EXPOSITION

A WORLD'S FAIR FOR THE INFORMATION AGE

[Train Illustration by Rob Pierce [e-mail: rrpierce@horandata.net]

THE INTERNET 1996 WORLD EXPOSITION

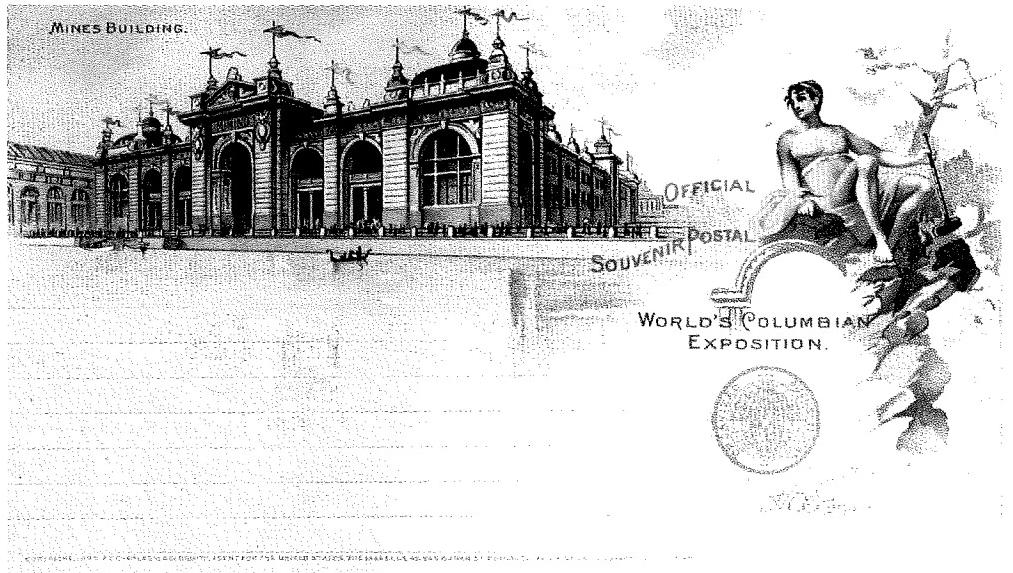
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